

Puck User Manual

(by G. Snell)

See the pictures at the end before reading!

How to mount pins in caps:

(Please follow these points carefully for compatibility with the robot!)

- if the crystals are going to be mounted with the robot, USE ONLY THE CUSTOM MADE CAPS, these are conical rather than having a lip as the Hampton caps
- in case of using Hampton caps, use the sizing tool to check their size
- break off the two bottom sections of the standard Hampton pin to obtain the right length; the pin should stand out 12-13 mm from the top of the cap
- use superglue, put the glue on the end of the pin and push it all the way to the bottom of the hole in the cap
- let the glue dry before freezing, in liquid nitrogen the glue DOES NOT DRY
- make sure there is no glue on the cap other than around the pin
- ‘quality control’:
 - to check if the glue holds, try to pull out the pin by hand, it shouldn’t come out
 - to check the pin length, put several of the pins mounted in caps on a flat surface, and discard the ones which are too short or too long compared to the average

How to load a puck with crystals:

- put a puck with the holes up into a small dewar and let it cool down
- using a magnetic wand to hold the cap, scoop out the crystals and put it straight into the puck
- keep track of which crystal goes into which position (enter into database)
- if a puck doesn't get filled with 16 samples, don't put in ‘dummy’ caps into the empty holes
- if the crystals are not going to be mounted with a robot, close the puck with the nonmagnetic lid, otherwise use the magnetic base
- both types of lids have only one orientation to fit onto the puck
- hold the magnetic base with the base holder and push the base into the puck
- once the center pin of the base is in the puck, move the base rapidly in, otherwise the magnet in the base might pick up the caps and pull them out of the puck
- make sure the base snaps in properly
- a cold puck should be handled with the puck tongs

How to load/unload pucks into/from the CP100 dewar:

- put a puck carrier into the CP100 and let it cool down, take out the safety rod (if it is in already)
- grab the puck with the puck tong, the base or lid should be on top, i.e. the crystals should be hanging inside the puck and the indexing groove on the side of the puck should be located opposite from the puck tong
- lift the carrier out of the CP100, but not completely, so half an inch at the bottom should be still in the dewar
- push the puck into the carrier until it snaps in, i.e. the puck is completely flush with the carrier
- if needed keep the dewar with your foot from moving
- to unload a puck from the CP100, use the same trick, i.e. leave the bottom of the carrier in the dewar
- when grabbing a puck with the puck tong to unload from the carrier, make sure not to grab the carrier itself
- for transportation secure the pucks in the carrier with the safety rod

Before cooling down any parts, make sure they are completely dry, as ice can ‘glue’ things together (most common problem: caps attached to the base so the gripper cannot pick them up).



Figure 1: Sample cassettes, a.k.a. pucks.



Figure 2: Magnetic base (left), nonmagnetic lid (right).



Figure 3: Tools from left to right: base holder, 45° puck tong, straight puck tong, pusher, magnetic wand.



Figure 4: Puck carrier and CP100 dry shipping dewar.